

AMENDMENTS IN THE CLAIMS:

1. (Currently Amended) A transducer for continuously and noninvasively measuring blood pressure in a blood vessel, ~~(52) characterized by~~ having integrated into a single semiconductor chip ~~(41)~~:
an array ~~(20,20b)~~ of transducer or sensor elements ~~(10,10b)~~,
means ~~(21)~~ for reading out data from said sensor elements ~~(10,10b)~~, and
means ~~(22,23,24)~~ for converting said data into a transmittable form.
2. (Currently Amended) The blood pressure transducer according to claim 1, further including interface means ~~(44)~~ for transmitting said data from said chip ~~(41)~~ to an external computer ~~(45)~~.
3. (Currently Amended) The blood pressure transducer according to claim 1 ~~or 2~~, wherein the semiconductor chip is a CMOS chip.
4. (Currently Amended) The blood pressure transducer according to claim 1, wherein each sensor element comprises a fluid-filled capacitive sensor having a flexible electrode or membrane ~~(11)~~ and a rigid electrode ~~(13)~~ and a fluid gap ~~(12)~~ connected to an opening ~~(15)~~.
5. (Currently Amended) The blood pressure transducer according to claim 1, wherein each sensor element ~~(10b)~~ comprises a resistive sensor having strain sensitive resistors on a flexible structure of cross-linked beams ~~(16)~~ a flexible protective membrane ~~(11b)~~ and a fluid gap ~~(12b)~~ connected to openings ~~(15)~~.
6. (Currently Amended) The blood pressure transducer according to ~~any preceding~~ claim 1, wherein the sensor elements ~~(10,10b)~~ are arranged in a square array ~~(20,20b)~~.

7. (Currently Amended) The blood pressure transducer according to claim 6, wherein the array ~~(20,20b)~~ comprises at least 2x2 sensor elements ~~(10,10b)~~, preferably 4x4 sensor elements ~~(10,10b)~~.

8. (Currently Amended) The blood pressure transducer according to claim 4 ~~and 6~~, wherein the array ~~(20)~~ comprises 2x2 sensor elements ~~(10)~~ arranged with adjacent openings ~~(15)~~ located in the center of said array ~~(20)~~.

9. (Currently Amended) The blood pressure transducer according to claim 7 ~~or 8~~, wherein the array ~~(20,20b)~~ of sensor elements ~~(10,10b)~~ is placed close to one end of the semiconductor chip ~~(41)~~.

10. (Currently Amended) The blood pressure transducer according to ~~an~~ preceding-claim 1, wherein the semiconductor chip ~~(41)~~ is part of a sensing device ~~(40)~~ which further includes a power source.

11. (Currently Amended) The blood pressure transducer according to ~~claims 2 and 10~~ claim 2, wherein the interface means ~~(44)~~ for transmitting the data from said chip ~~(41)~~ to an external computer ~~(45)~~ is a wireless transmission means.

12. (Currently Amended) A system for continuously and noninvasively measuring and monitoring blood pressure in a blood vessel ~~(52)~~, ~~characterized by~~ comprising a sensing device ~~(40)~~ including a single semiconductor chip ~~(41)~~ having integrated:

an array ~~(20,20b)~~ of sensor elements ~~(10,10b)~~ overlying said blood vessel,
means ~~(21)~~ for reading out data from said sensor elements ~~(10,10b)~~,
means ~~(22,23,24)~~ for converting said data, and
means ~~(44)~~ for interfacing with external evaluation means ~~(45)~~.

13. (Currently Amended) The measuring and monitoring system according to claim 12, further including a power source on the sensing device (40) and wireless means for interfacing with the external evaluation means (45).

14. (Currently Amended) A method for making a transducer (41) for continuously and noninvasively measuring and monitoring blood pressure in a blood vessel (52), the method including the steps of:

fabricating on a single semiconductor chip (41) with conventional semiconductor technology, preferably CMOS technology,

an array (20,20b) of sensor elements (10,10b),

means (22,23, 24) for converting, and

means (44) for transmitting said data to external evaluation means (45).

15. (Currently Amended) A method for using a transducer (41) according to ~~any of the claims 1 to 11~~ claim 1 ~~or a system according to claim 12 or 13~~ for continuously and noninvasively measuring and monitoring blood pressure in a blood vessel (52) ~~characterized by~~ , the method comprising the steps of:

extracting directional information from said continuous blood pressure measurement data to locate arteries and/or veins, and/or

extracting characteristic signal features from said continuous blood pressure measurement data to differentiate between arteries and veins.

16. (Currently Amended) A method for using a transducer (41) according to ~~any of the claims 1 to 11~~ claim 1 ~~or a system according to claim 12 or 13~~ for continuously and noninvasively measuring and monitoring blood pressure in a blood vessel (52) ~~characterized by~~ , the method comprising the steps of:

producing a map pattern of said continuous blood pressure measurement data to identify abrupt features, in particular blockages due to calcification inside arteries and veins.